BOTANICAL GAZETTE.

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VARIATIONS OF COLOR IN FLOWERS.—Botanizing recently with some friends on the Malden Highlands, (Mass.), we found a pure white variety of *Gerardia tenuifolia*. The color was clear and distinct, and as the plants were growing with the purple-flowered, without any intermediate tints, it seemed to be a remarkable instance of transition from a primary to another, and an extremely different color. Further on, however, we found one purple-flowered plant with a single branch bearing white flowers with a single large purple blotch on each of the lower petals, being a very pretty sport.

More recently, on going over the same ground alone, I found plants with the flowers all pure white, and plants with the flowers all variegated purple and white.

As I have not before met with such a variation in this species, and do not recall any mention of it, I thought it might be of sufficient interest to make a note of, merely as another instance on the part of certain colors to vary to white, and in connection with it offer the following notes:

Some flowers that vary to white pass through a certain transition of tints from the formation of the bud until the full expansion of the flower, before becoming pure white, while others are white from the first starting of the bud. In the former instance the flowers on being pressed return to what we might call the bud color, and retain that color when dry. In the latter instance the flowers remain white after being pressed, and becoming dry. In the case of the Gerardia, I find that all the flowers that were white, when fully expanded remain white after being pressed, showing no transition of tints in their development.

There is a very pretty rose-colored variety of this species of Gerardia that not only retains the color of its flowers on being pressed, but, also, retains the color of its stem and foliage, instead of turning black like the normal condition of the species. This appears to be the case also with the white variety that I have now pressed.

It is not always the case that a change of color in a flower is an improvement, but this little white Gerardia pleases me even more than the purple.

We have in Massachusetts one of the most beautiful flowers in all the floral kingdom—the charming *Sabbatia chloroides*. The exquisite tint of this lovely flower is something that escapes description. To call it pink, rose color, or rose pink, as is sometimes done, does not seem to me to express it at all, and certainly does not give any idea of the beautiful markings that encircle the base of the petals. But this indescribable tint, with the most delicately-faint, but deliciously-sweet odor, that is scarcely perceptible in a single flower, but which, when the flowers are gathered in a bunch and placed in a vase, will gradually fill a room with a perfume even more delicate, and no less sweet than that of the wild rose, combine to make this gem of midsummer an object of admiration to all who see it.

I have introduced this notice of it here in order to mention a white variety that also grows with us, but which, to me, is interesting only as a novelty that serves, by way of contrast, to make the superior beauty of the other still more conspicuous.

This white variety, however, is peculiar in the transition of tints that it undergoes in expanding its flowers. The bud, and half-opened flowers are of a pale lavender color which gradually fades out until it becomes white in the fully expanded flowers; these white flowers again on being pressed, return to the lavender tint which they continue to retain on becoming dry.

Perhaps the most remarkable instance of a flower varying to white is that of *Lobelia cardinalis*; but the white variety is certainly no improvement on the primary color. The glory of the Cardinal flower is in its intense flaming scarlet that oftentimes lights up the dark ravines as with torches of fire, and this glory vanishes just in proportion as the color changes into rose, white, or as I once found it, variegated white and red The white variety is interesting as a novelty, and retains its color on being pressed. The stems, too, are not so dark and purple as the stems in the other, and the whole plant is much lighter colored.

Blue, pink and purple colors frequently vary to white; yellows seldom. But Mr. Faxon mentioned finding a white variety of *Impatiens pallida*, which on being pressed, returned to the pale yellow color of the species.

These notes might be extended to considerable length, but I have already, I fear, trespassed too much on your space.—GEO. E. DAVENPORT, *Boston, September*, 1877.

NOTE.—Since writing these notes, a lady who has found a white variety of *Mimulus ringens*, tells me that she has also found the white variety of *Gerardia tenuifolia*.

NOTES BY C. F. AUSTIN.—ERPODIUM BISERIATUM (?)*Lejeunia biseriata*, AUST. *in Proc. Phila Acad. for March*, 1869, *p.* 225. Stems (so far as is known) less than ¾ of an inch long and simple, sub-julaceous when dry, resembling short simple stems of *Frullania squarrosa*. Dorsal (or lateral) stem-leaves broadly ovate-oval, convex, very obtuse, imbricated, succubous, convolute-appressed when dry, widely spreading when moist, reddish or fuscous brown, entire, minutely and closely papillose, the whole lower margin strongly recurved; areolation composed of small opake roundish or oval cells, which are enlarged in the centre towards the base of the leaf, while those on its margin are somewhat translucent. Ventral leaves much smaller (about ⅓ as wide and ⅔ as long) and stipule-like, linear-oblong, plane, attached diagonally to the stem opposite the base of the dorsal leaves, erect-divaricate. Flowers and fruit unknown. Rootlets stout, brown, simple, jointless, proceeding from the base of the ventral leaves (always?). (Georgia, SULLIVANT.)

In *E. Domingense*, BRID. (Cuba, WRIGHT), the ventral leaves are nearly as large as the dorsal ones, which latter have a somewhat lingulate apex. Perichætial leaves not 4-ranked. Calyptra conic-campanulate, covering about ½ of the capsule. Peristome of a few imperfect ciliæ-like teeth, inserted within the mouth of the capsule. Monœcious male; flower eparaphysate.

HYPNUM (HARPIDIUM) JAMESII, *n. sp.*—Compacte cæspitosum; caule fragili erecto subflexuoso remote innovandi ramoso vel simplici, foliis subhomomallo-uncinatis valde concavis lanceolatis attenuato-acuminatis basi sensim angustatis margine integerrimis (nonnullove obscure serratis), costa basi lata crassiuscula in medio sensim defluente cellulis mediocriter magnis lineari-fusiformibus rectis vel subflexuosis, basilaribus infimis multum brevioribus vix latioribus, auricularibus perpaucis subinflatis demum badiis; flores et fructus ignoti. White Mountains, New Hampshire, *James*.

Having diligently compared this moss with all the species of *Harpidium* known to me without being able to identify it, I have reluctantly concluded to describe it as new. It resembles in size and somewhat in appearance *Hypnum fluitans* var. *turfaceum*, while in its subsimple stems it is much like *H. revolvens*; but the former has the leaf of a totally different texture, serrate at the apex, etc., and the latter has a longer more circinnate leaf with narrower cells (but a somewhat similar costa). *H. vernicosum* is a much branched species with a similarly shaped leaf, but the cells, as in *H. revolvens*, are closer, those at the base not at all inflated, costa narrower and thinner, etc.

A form of *H. uncinatum*, with *leaves perfectly estriate*, occurs in great abundance in the Alpine region of the White Mountains. The inflorescence of this species is polygamous. Mr. Peck has collected a form of this species in the Adirondack (without

fruit) of a *dull green color*, and with *estriate erectish* only slightly curved leaves. (*Hypnum Peckii*, AUST. *in litt.* olim.)

Hypnum fluitans occurs near Closter, with an abortive female flower on the distinctly pedicelled male flower, in the axil of a lower perigonial leaf. These (female flowers) are composed of a few minute leaves enclosing from 1–3 pistils and several short paraphyses. This species is readily distinguished when fertile by the broad, very abruptly pointed peri-chætial leaves. It sometimes roots from the apex of the stem leaves. Slender forms often have the leaves obtuse.

HYPNUM EXANNULATUM, GUMB. var. COCHLEÆ. Caule stricto rigido parce diviso interrupte valde ramoso, foliis erectis purpureo variegatis apice pro more integerrimis in siccis parte superiore spiraliter tortis, basi sensim paulo angustata distincte serrata, cellulis infimis plerumque serie singula transversa inflatis.—*Dichelyma Swartzii*, S. & L. *Exsic. Ed.* 2., *n.* 344, planta Californica. Var. IMMERSUM.—Caule tenui debili, foliis circinnato-falcatis tenuis perangustis, basi ut in præcedente, apice distinctius remote serrato.—*Dichelyma Swartzii*, S. & L. l. c., planta Novæ Cæsarensis. Var. SWARTZII.—Foliis hamato-incurvis rigidis (subserratis) basi solidioribus, cæteroquin ut in præcedente.—*Dichelyma Swartzii*, LINDB!

Hypnum exannulatum is nearest to *H. fluitans*, from which it may always be distinguished by the narrower, much less abruptly pointed perichætial leaves, by the stem leaves gradually more or less narrowed toward the base, more or less distinctly serrate on the margin throughout (only serrate at the apex in *H. fluitans*), with much enlarged and inflated cells at the basal angles or extending across the base. Sometimes these inflated cells occur only at the basal angles, where they form a distinct large patch, and sometimes they extend across the whole base of the leaf *in the same example*. The plant is also diœcious; but I have always found the male and female plants mixed in fertile examples.

HYPNUM VACILLANS, SULLIV., *Icon. Suppl.*, is a form of *Hypnum riparium*, HEDW., (no doubt), with the leaves often obtuse. I have found a large form (sterile) in running water, and resembling a *Fontinalis*, with the leaves all obtuse.

Hypnum fluviatile, SWARTZ, is certainly only a form of *H. oligorrhizon*, GUMB., which is a form of *H. orthocladon*, BEAUV., which is a form of *H. serpens*, Linn. These forms clearly depend upon external causes—as matrix and climate—for the development of their peculiarities. The same may affirmed of all the other forms of *H. serpens*, as *H. radicale*, BRID., *H. irriguum*, WILS., *H. noterophilum*, S. & L., etc. In fact, so far as I have observed, *there is no such thing as variety among any of the cryptogams*, in the sense in which the term *variety* is applied to phænogams; none of them having the power to reproduce their peculiarities under a change of matrix or of climatic influence.

AN EXPLANATION.—A remark made by Mr. N. Coleman in the July number of the GAZETTE, really calls for an explanation on my part. He says "there must be some mistake!" We admit it, and a very unfortunate mistake for the credit of our State Flora, on the part of the authors of our Catalogue, who report only 979 plants, while our whole number must be twice as many! This came from not consulting Drs. C. C. Parry, Davenport; G. E. Ehinger, Keokuk; P. J. Farnsworth (Medical Professor at Iowa University, residence Clinton), and other older botanists. Many plants reported by me were collected from five to eleven years ago, and only now reported to rectify the deficit in said Catalogue. Nebraska reports 2,022 plants, and surely our good state, after all due allowance for the drift by long rivers from far western mountains of a host of their rarest flowers, ought not to fall behind by the thousand! I would, therefore, request that Mr. N. Coleman, Dr. C. C. Parry, and those above named, would send to the author of our Catalogue, Mr. J. C. Arthur, Ames, for copies and fill up the deficiencies in the

columns of the GAZETTE, giving dates and peculiarities, and so great good would grow out of this apparent evil.

One mistake of the authors of our Catalogue is to deny many of our clearest, admitted species. Thus they reject our beautiful *Tradescantia rosea*, *Rosa lucida*, *Panicum amarum* and *Carex varia*, holding that the latter is "merely an upland form of *Carex Pennsylvanica*,"—quite unfortunately, as both species *grow together* on upland or lowland indifferently! The season is not half over, but by a very fruitful visit of three weeks to Lyons, Clinton and Cedar Rapids, I have a score of rare and valuable plants to add to said Catalogue, which will be sent for verification, with the Report, to the editor of the GAZETTE, so as to preclude all doubt. Five of these occur in Ames, viz: *Euphorbia polygonifolia*, L., July 22, College and cemetery; *Euphorbia herniarioides ?* Nutt., August 9, cemetery (not quite ripe); *Iva ciliata*, Willd., from Ames to Nevada, August 14; *Potamogeton lucens*, L. var. ?*fluitans*, Gray, Moses' farm, two miles east of Ames, deep slough now nearly dry, growing in mud, submersed leave gone, July 31; with *Artemisia Canadensis*, Michx., Ames, 1876, abounds from College farm to Tama City, on gravelly banks, roadsides. It occurs no further west. To which may be added a beautif l specimen of *Pentstemon Cobarii*, sent at my request from Crescent City, Iowa, by H. H. Terry, who deserves great credit for its introduction from Nebraska, with other rare plants.—R. BURGESS, *Ames, Iowa.*

PURE WHITE VERBENA STRICTA.—This summer I found five pure-white specimens of *V. stricta* growing near each other. About forty rods from these were three others—perhaps seedlings of the first. Eight miles from this locality one plant was found, and twenty miles from the five first discovered three others were seen. The points of interest in regard to them were their wide distribution considering their rarity, their being surrounded by numerous specimens of the usual color, no pale intermediate forms being near, and in three cases out of the four, where there was more than one plant in a place, they grew close together, not being interspersed among the blue. Five roots were examined to see if they suckered, but no such connection was found. No difference in structure was observed between the white and the blue, excepting that the flower spikes were more slender and pointed in the white than in the blue.—J. M. MILLIGAN, *Morgan county, Ill.*

IS HELIANTHUS LÆTIFLORUS A GOOD SPECIES?—I have had reason to doubt whether this sunflower is a distinct plant. According to Gray's Manual, it has *yellow* disk flowers and *acute* involucral scales, "the leaves almost as thick as in *H. rigidus*," while the latter is said to have *purple* disk flowers and *obtuse* scales. I can see no other difference between the species, in the descriptions. Now, our *H. rigidus* usually has *acute* scales, (it is so described in Chapman's Flora!) and I have found near Oquawka, this season, several plants of this species with a *yellow* disk. The leaves vary greatly in size and shape, on different plants, from broadly ovate to almost linear, always thick and very rough. The color of flowers is, I think, of small importance. Mr. Bebb has found the allied *Rudbeckia hirta*, (usually purple), with a yellow disk. Will some one who believes in *H. lætiflorus*, defend that species and send me a specimen?—H. N. P., *Box* 16, *Oquawka, Ill.*

SOME NYMPHÆAS.—Dr. H. C. Beardslee, of Painesville, O., writes as follows: "A young lady of this place brought me, last week, a specimen of *Nelumbium luteum*, Salisb., collected in Bass Lake, a small inland lake, 12 or 15 miles south of this place and on the highlands 18 or 20 miles south of the lake shore. The locality was a surprise to me. The same lady informs me that she found a *Nymphæa* with pink flowers, not fragrant. Our white pond lily is *N. tuberosa* of Paine, which is said by Gray, in the Manual, never to have *pink* flowers. Either *Nymphæa odorata* occurs in that pond, which I can scarcely believe, or the petals of *N. tuberosa* are sometimes pink, or in the

third place, the two may not after all be specifically distinct. A lady from Milwaukee tells me that fragrant white pond lilies occur near that place."

MEGARRHIZA.—Since receiving the August number of the GAZETTE, I have been on the alert for *Megarrhiza*, being fully determined to find it if it grew in the county of Sonoma. For three days I looked for it upon the bushes on Fitch Mountain. The next day, however, I descended the Russian river in search of a corn field, in which I remembered the *Sicyos angulatus* to have particularly flourished in the East. About a mile and a half from Healdsburg, on the right bank of the river, we spied the looked-for corn field, and carefully stepping to the top of the high picket fence enclosing the field, we perceived that the back fence was at intervals covered by a closely matted, brown-colored vine. Hastening across the field we grasped the dried fruit of *Megarrhiza*. After a long and tedious search we obtained some fifteen seeds, corresponding to the description given by Dr. Gray. There are four seeds of an almond shape contained in a thorny obovate fruit. The fruit being very ripe, the seeds had generally fallen and had been devoured by the rats.

Desiring to satisfy ourselves that it was surely Megarrhiza, we began with our botany knife to search for the root. Having followed a vine into the ground to the depth of 18 inches, we pressed into service a "small boy," who was curiously eyeing our movements. Securing a long handled shovel we continued our downward career. At the depth of 21 inches we came to the top of the rootstock; an *hour* later we had come to bed rock and were hauling the stock to the surface. This I carried home and will give the measurements: weight, 18 lbs; length of main root, 2 feet 10½ inches; circumference at the top, 21½ inches; circumference one foot from base, 15½ inches; shape, for 20 inches nearly cylindrical, then fusiform. Depth of hole, from top to bottom, 55½ inches.—R. H. THOMSON, *Healdsburg, California.*

THE "BARRENS" OF SOUTHERN INDIANA.—Ever since the writer had the privilege of arranging Dr. A. Clapp's botanical collection, made principally in 1836–1839, and discovered many desirable plants labeled "Barrens," these barrens have been often in his mind as one of the most desirable localities in Indiana for the botanical collector. At last the trip has been made, the Barrens explored, and we lay the results before the readers of the GAZETTE. The Barrens are of considerable extent, occupying quite a large area in the corners of four counties, Clarke, Floyd, Washington and Harrison. All over this region the drainage is effected by "sink-holes," not a stream, rivulet, or a single drop of running water appearing at the surface. The country is very rolling and in the bottom of each depression are found from one to three "sink holes," sometimes full of water, at others mere filthy mires, or empty. The surface is a mass of flinty stones and concretionary boulders, "nigger-heads" as they are called. The result of this flinty soil and absence of surface moisture is plainly shown in the vegetation. Scattered all over this area are thickets of scrub oak and small shrubby undergrowth, separated from one another by natural openings where, so far as we could judge, no tree or shrub had ever grown. It was in these open places that we found our best species. A trip through the Barrens is a disappointing one, for although one can secure many valuable prizes, he is constantly grieving on account of the ravages of civilization. When Dr. Clapp collected his specimens here forty years ago, it was no doubt a perfect wilderness, but now settlers have come in, a German population has taken possession of the Barrens, and our natural openings are made to yield some of the finest wheat in the State. Instead of the gorgeous display of rare and beautiful flowers, which cover the ground profusely wherever they have been left standing room, we see the monotonous succession of fields of grain or stubble. Even the fence corners are kept scrupulously clear of "weeds," for your German farmer cares nothing for science if it chokes up his fence rows. In the fields of one farmer, however, the weeds had the start, and there we found some good species, such as *Liatris scariosa*, Willd., *Eupatorium sessilifolium*, L.,

Brachychæta cordata, T. & G., *Solidago rigida*, L., *S. nemoralis*, Ait., *Silphium trifoliatum*, L., *Echinacea purpurea*, Moench, *Rudbeckia laciniata*, L., *Lepachys pinnata*, T. & G., *Helianthus mollis*, Lam., *H. rigidus*, Desf., *H. microcephalus*, T. & G., *H. hirsutus*, Raf., *Coreopsis tripteris*, L., *Dysodia chrysanthemoides*, Lag., *Stylosanthes elatior*, Swartz, *Desmodium rotundifolium*, DC., *Lespedeza procumbens*, Mx., *Tephrosia Virginiana*, Pers., *Phaseolus helvolus*, L., *Eryngium yuccæfolium*, Michx., etc. Enough has been given to show the general nature of the species. We were there in that most unfortunate time, that could be called the resting season, when all the spring and early summer flowers have disappeared and the fall flowers have not yet begun to show their brilliant blossoms. All along over the Knobs, on the way to the Barrens, we encountered any quantity of *Croton monanthogynum*, Michx., in beautiful condition for specimens. *Dysodia* was hardly absent from the roadside for thirty miles, and its fragrance came to be one of the accompaniments of the landscape. It is to be hoped that a trip later in the fall will bring back fresh specimens of many more desirable species.—J. M. C.

ZANTHOXYLUM AMERICANUM, MILL.—A few days since while hurrying through the woods my attention was called to a small cluster of trees bearing *bright red* berries, to all appearances. On nearing it I found it to be *Zanthoxylum*, or Prickly Ash, and noticed at once the air was filled with a delightful fragrance as of fresh lemons. By a little pressure of the pods, which I found upon closer examination to have an oily look and to vary in color from a *greenish yellow* to a *bright red at maturity*, I soon found my fingers covered with an oil so volatile that it was hardly expressed until it was gone. However, I had found the source of the pleasant odors that were filling the air. My curiosity led me one step further, and that was to taste the fruit. I knew it was medicinal, but I was hardly prepared for the revelations of the next moment, for as I began to chew, it began to take good hold upon my tongue, mouth and lips, and such a burning dryness as I had for the next half hour I have never before known. Water only seemed to add fuel to the flame which thus carried its stimulating effects further down. As a result of this experimental knowledge I would heartily approve of the name "Toothache-tree," for he who dares to chew the green fruit will soon have little time to think of his previous pains. These bushes with their brilliant fruit, sightly foliage and exquisite fragrance, certainly invite cultivation.—A. H. Y.

CURIOUS DISSEMINATION.—For two years I was baffled in my efforts to gather seed of the beautiful *Leucocrinum montanum*, abundant in Sierra Valley, but rare elsewhere in California. During the first season I found how oddly the pericarp remained down in the ground, though the large, creamy white flower was exserted two or three inches above it, but not until too late to save seed at the close of the second season did I discover *how* the shining black seeds were spirited away.

The *Leucocrinum* is a Liliaceous plant of the fibrous-rooted kind, and acaulescent. Its grass-like leaves, ½ inch wide by 4 to 6 long, rise from a caudex sessile upon the roots, an inch or more below the surface of the ground. As inferred, the pericarp is short stipitate, and matures its seed at a locality in the ground, to be sure, but quite unfavorable for successful rooting, since, when the pericarp bursts, the seeds are discharged upon a spot already occupied by the perennial parent plant; that is, it would *seem* that they are thus left to fate, but when the spot is searched after the plant ripens and its leaves are gone not a seed remains in place. *They are carried away by the incurved bases of the withered leaves, and blown with them by the wind over the plain.*—J. G. LEMMON.

PLANTS FOR SALE.—Mr. Geo. D. Butler, of Almont, Iowa, has several sets of southwestern plants to sell, containing very rare species, as for instance, *Selenia aurea*, Nutt., *Stellaria Nuttallii*, T. & G., *Tephrosia onobrychoides*, Nutt., *Acacia hirta*, Nutt., *Rosa foliolosa*, Nutt., *Gaura Sinuata*, Nutt., *Trepocarpus Æthusæ*, Nutt., *Apium Popei*,

Gray, *Fedia Nuttallii*, T. & G., *Engelmannia pinnatifida*, T. & G., *Monarda Russelliana*, Nutt., *Andrachne Rœmeriana*, Muller, *Spiranthes renealis*, Eng. & Gray. They will be sold in sets of 100 species for $10. The species have been named by Dr. Engelman.

Mrs. M. E. P. Ames, of San Jose, California, has sent to this office a limited number of sets of California plants to be sold. The Editor has examined the plants and can recommend them as being exceedingly desirable species. They are put up in sets of 50 species for $5.00. Any botanists desirous of securing these specimens will address the office at Hanover, Ind.

Mr. C. G. Pringle, of Charlotte, Vt., offers for exchange or sale a few sets of the Alpine Plants of New England, the fruit of his extensive herborizing during the past summer in the White and Green Mountains. Mr. Pringle's collections contain *Gentiana Amarella*, var., *acuta* (American Naturalist, Vol. XI., p. 620), *Anemone multifida*, *Astragalus. Robbinsii*, *Gnaphalium supinum*, *Orchis rotundifolia*, *Danthonia compressa*, and nearly all the other rare plants of his region.

American Naturalist, September. Byron D. Halsted has an illustrated paper on "Reproduction in Fresh-Water Algæ." He points out a few of the methods of asexual and sexual reproduction, and shows that the often supposed sameness of reproduction in these plants of low grade is lost in an endless variety of methods and changes. In an article on "Violets," is given a preliminary sketch of the literature in reference to the two kinds of flowers so often observed in many of the species of violet. In many species flowers appear in summer entirely unlike the more showy ones of early spring. Flowers of this kind have long been known, but they need to be more carefully examined with reference to their specific peculiarities. The object of the present sketch is the hope that some of our botanists may collect and study these forms. The first observations recorded of flowers of this kind were in 1732, by Dillenius and Linnæus, in the case of *Viola mirabilis*. Several interesting extracts with reference to this subject are given from the *Botanische Zeitung*. Some botanists have even suggested that the species of violets may be distinguished by the characters of the late flowers.

Bulletin of the Torrey Botanical Club, August.—Dr. Thurber gives an interesting notice of "An Orange within an Orange." He says "the genus *Citrus* appears to have a remarkable tendency to produce abnormal forms, and probably affords writers on vegetable teratology more illustrations than almost any other." Dr. J. F. Joor, of Harrisburg, Texas, makes an interesting observation on *Callitriche Nuttallii*, Torr. He finds that the supposed rooting from the joints of the prostrate stem a mistake, but that "after the flowers are fertilized, the peduncles lengthen, at the same time turning downwards, until the little nutlets, characteristic of the genus, are forced quite beneath the surface of the moist earth. If collected at this time, the peduncles appear like roots, bearing little tubers at their ends." Mr. Leggett has found that *Pontederia cordata* is trimorphic. Of the three kinds of flowers, "one has the stigma raised on the style to the top of the flower, a second only to the middle of the flower or top of the tube, and the third with a very short style at the bottom of the tube."

Gardner's Monthly, September. This journal is always full of valuable and seasonable information for horticulturists and botanists in general. This number contains quite a long and very readable communication from the editor entitled, "European Notes."

Mr. Darwin on the Fertilization of Flowers by Thomas Meehan.—This is a review of Mr. Darwin s work on "Cross and Self-Fertilization in the Vegetable Kingdom." Mr. Meehan gives Mr. Darwin unbounded praise for his patient, laborious work, but he does not draw the same conclusions from the same facts, and believes that there is infinitely more self-fertilization among flowers than advocates of Insect agency have been contending for.

Woods and Woodlands, a Lecture by Prof. Wm. H. Brewer, is from the Report of the Secretary of the Conn. Board of Agriculture, 1876, and is an able appeal for the more careful preservation of our forests. It also gives valuable instruction in regard to the best trees for planting and other matters pertaining to timber.

Observationes Lichenologicæ, No. 4. Observations on North American and other Lichens, by Edward Tuckerman, M. A. From the proceedings of the American Academy. Prof. Tuckerman in this contribution describes about thirty-five new species of lichens, and in an appendix gives a little notice of the Kerguelen lichens. It seems that Rev. J. M. Crombie, in publishing a note on "New Lichens from Kerguelen Land," collected by the British Transit Expedition, and determined by Dr. Nylander, paid very little regard to the previous determination and naming of certain species by Prof. Tuckerman, and when notice of them was taken at all, it was in a way that seemed unkind, to say the least about it. Prof. Tuckerman makes a manly statement of the facts, frankly acknowleding the superiority of the British collection and any mistakes that he may have made, but contending strongly for points in which he thinks himself right.

In closing Vol. II. of the *Gazette*, we make the following announcement for Vol. III.:

The *Gazette* will continue for the ensuing year under the editorial management of JOHN M. COULTER and M. S. COULTER. Encouraged by the success of the past years, we desire to make the *Gazette* a *necessity* to Botanists.

In Vol. III. the leading articles, when needful, will be illustrated, in the hope that a greater interest and attractiveness may be added to our pages. Its object, as heretofore, will be to afford a rapid and convenient means of communication among Botanists. Thanking the Botanists of the country for their uniformly kind expressions in regard to the *Gazette*, as well as for the material which they have furnished us, we respectfully ask them to aid us again in our enterprise—both by notes and subscriptions

Our list of contributors, containing a large number of prominent Western Botanists, gives promise of much new material from that region of country.

It has been thought best to begin Volume III. with the year, as our subscriptions are nearly all arranged in that way, thus breaking into two volumes. No. 1 of Vol. III. will appear about the middle of December.

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